

CLAIMS

1) Production plant for making and packing articles and comprising automatic making and packing machines (2),
5 each of which has a relevant control unit (3) for
✓ controlling all ~~the~~ operating and monitoring devices of
the automatic machine (2) to process and memorize data
relative to operation of the automatic machine (2) as a
whole; the production plant (1) further comprising a
10 collection computer (9), a first communication network
(5; 8) for connecting the control units (3) to the
collection computer (9), and a second communication
network (8) connected to the collection computer (9); the
production plant (1) being characterized in that the
15 collection computer (9) awaits receipt of information
packages (P) transmitted independently and asynchronously
✓ by ~~the~~ control unit (3) over the first communication
network (5; 8), the collection computer (9) processes and
organizes the information packages (P) received from the
20 control units (3) to generate overall data (D), and the
collection computer (9) acts as a server in the second
communication network (8) to permit access to said
overall data (D) over the second communication network
(8).

25 2) Production plant as claimed in Claim 1, wherein
said information packages (P) are transmitted between the
control unit (3) and the collection computer (9)
according to a master/slave system in which the

collection computer (9) is the slave, so that communication over said first communication network (5; 8) is one-way and originated exclusively by the control unit (3).

5 3) Production plant as claimed in Claim 1, wherein
said second communication network (8) is an Ethernet
network employing the TCP/IP protocol.

4) Production plant as claimed in Claim 1, wherein
said collection computer (9) is configured to act on the
10 second communication network (8) as a Web Server to
transmit said overall data (D) upon request and according
to the Internet/Intranet standard.

5) Production plant as claimed in Claim 1, wherein
said first (5; 8) and said second (8) communication
15 network coincide physically.

6) Production plant as claimed in Claim 1, wherein each said control unit (3) assigns each respective information package (P) a recognition code by which to recognize the automatic machine (2) supplying the information in the package, and to allow the collection computer (9) to determine unequivocally the origin of each information package (P).

7) Production plant as claimed in Claim 1, wherein
said collection computer (9) reorganizes said information
25 packages (P) for each automatic machine (2) and
production complex to generate said overall data (D).

8) Production plant as claimed in Claim 1, wherein each said automatic machine (2) comprises a respective

interface devices (7) connected to the relevant control units (3) by a third communication network (5).

9) Production plant as claimed in Claim 1, wherein said first (5; 8) and said second (8) communication network are physically separate with respect to said third communication network (5).

10) Production plant as claimed in Claim 8, wherein said third communication network (5) is an Ethernet network employing the TCP/IP protocol.

10 11) Production plant as claimed in Claim 1, wherein
✓ the date and time of said control unit (3) are synchronized centrally by said collection computer (9).

12) Production plant for making and packing articles and comprising a number of automatic machines (2), each 15 of which has a respective control unit (3) for controlling all the operating and monitoring devices of the automatic machine (2) and operating according to its own management software and its own set of configuration parameters; the control units (3) being connected by a 20 first communication network (5; 8) to a central collection computer (9); and the production plant (1) being characterized in that said collection computer (9) keeps, for each said control unit (3), an updated copy of the respective management software and respective set of 25 configuration parameters; and said collection computer (9) is able to transfer its own copy of the relative management software and relative set of configuration parameters to each control unit (3).

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13) Production plant as claimed in Claim 12, wherein each control unit (3) is able to communicate independently to said collection computer (9) any variation in its management software and/or set of 5 configuration parameters.

14) Production plant as claimed in Claim 12, wherein said production plant (1) comprises at least one user interface device (7) connected to said collection computer (9) over said first communication network (5; 8) 10 and operating according to its own management software, its own set of configuration parameters, and its own set of display elements; said collection computer (9) keeps, for said user interface device (7), an updated copy of the respective management software, respective set of 15 configuration parameters, and respective set of display elements; and said collection computer (9) is able to transfer its own copy of the relative management software, relative set of configuration parameters, and relative set of display elements to said user interface 20 device (7).

15) Production plant as claimed in Claim 12, wherein said collection computer (9) can be connected over a second communication network (8) to a computer of the maker of the automatic machines (2) to receive 25 telematically an updated version of said management software.

16) Production plant as claimed in Claim 15, wherein said second communication network (8) comprises an

Internet network.

17) Production plant as claimed in Claim 15, wherein said collection computer (9) automatically updates the management software of each control unit (3) and each 5 user interface device (7).

18) Production plant for making and packing articles and comprising automatic making and packing machines (2), each of which has a relevant control unit (3) for controlling all the operating and monitoring devices of 10 the automatic machine (2) to process and memorize data relative to operation of the automatic machine (2) as a whole; the production plant (1) further comprising a collection computer (9), a first communication network (5; 8) for connecting the control units (3) to the 15 collection computer (9) in order to communicate to the collection computer (9) data relative to their own operation; the production plant (1) being characterized in comprising at least one second communication network (8) used by the collection computer (9) to report 20 important events to a given group of users by means of electronic mail messages.

19) Production plant as claimed in Claim 18, wherein said important events comprise routine maintenance and repairs to be carried out on said automatic machines (2).

20) Production plant as claimed in Claim 18, wherein 25 said important events comprise machine stoppages caused by serious breakdowns.

21) Production plant as claimed in Claim 18, wherein

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said important events comprise the need for spare parts; the electronic mail message requesting spare parts also being sent to the maker of the automatic machines (2).

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